

From: [LIVERMAN Alex](#)
To: [Chip Humphrey/R10/USEPA/US@EPA](#); [Jonathan Freedman/R10/USEPA/US@EPA](#)
Cc: [ANDERSON Jim M](#); [PUENT Sally](#)
Subject: RE: PO Bar dredging draft Findings and 401 cert language & conditions
Date: 07/26/2010 12:56 PM
Importance: High

Hi guys!

Just putting this out there to you again to elicit your comments as I am getting pressure from USACE to complete the evaluation. It would be great to incorporate your input before I put it out on public notice at the beginning of Aug. Thanks!

--Alex

From: LIVERMAN Alex
Sent: Wednesday, July 21, 2010 3:37 PM
To: 'Humphrey.Chip@epamail.epa.gov'; freedman.jonathan@epa.gov
Cc: ANDERSON Jim M
Subject: PO Bar dredging draft Findings and 401 cert language & conditions

Hiya!

Thanks again for weighing in on this one. I am preparing my draft Findings and 401 certification for public notice. You will have a chance look at them in their entirety, then (WooHoo!), but I'd like to run a few things by you before I go out to the public...

Here are a few key excerpts from the Findings where I attribute info to you or am unsure about my own reasoning. What do you think? All comments and language suggestions welcome.

7.10.5 DEQ Evaluation on Total Dissolved Solids

Sediment sampling in accord with the protocols of the multi-agency Sediment Evaluation Framework (USACE et al, 2009) found elevated levels of DDT, PCBs, Cadmium and Zinc. While clamshell dredging has a high likelihood of resuspending sediments and associated contaminants (Bridges et al, 2008), elutriate testing was not performed to determine potential concentrations of these chemicals likely to become suspended or dissolved in the water column. Cadmium and Zinc are anticipated to be strongly associated with organic portions of sediments present and the proposed dredging disturbance is unlikely to cause dissociation or partitioning of these metals to a dissolved state. In contrast, DDT and PCBs have hydrophilic properties, and PCBs have been shown to be released into the water column during dredging in amounts of 2 to 3% of the mass present (Bridges, 2008).

Concentrations of total PCB Aroclors in the samples of sediments to be dredged range from non-detect to 154 µg/kg [or parts per billion (ppb)]. Assuming 3% of 154 ppb will become dissolved indicates that approximately 4.6 ppb could potentially become available to the water column over the disturbed area. Given the dilution volume of the Willamette River, it is unlikely that the acute freshwater water quality

standard for PCBs of 2.0 µg/L [or parts per billion (ppb)] will be exceeded as a result of mobilization into the water column, even using this conservative approach.

Concentrations of DDT in the samples of sediments to be dredged range from less than 1.0 ppb to 4.0 ppb. Assuming 3% of the highest mass will become dissolved indicates that approximately 0.12 ppb could potentially become available to the water column. Given the dilution volume of the Willamette River, it is unlikely that the acute freshwater water quality standard for DDT of 1.1 ppb will be exceeded as a result of mobilization into the water column, even using this conservative approach.

7.10.6 DEQ Finding on Total Dissolved Solids

Based on the available information, the levels of existing contamination do pose risks for exposed aquatic life. However, given the relative levels of contamination and low potential for dissolved partitioning, limited magnitude and duration of exposure is anticipated. As all decant water will be contained without discharging to waters of the state, it is unlikely that dissolved levels of PCBs, DDT, Cadmium or Zinc will exceed water quality standards as a result of either the dredging or disposal actions.

7.11.2 Present Condition of Toxic Substances

The Willamette River is currently listed as impaired or with potential concern for impairment for multiple Toxic Substances. These include Dioxin, Mercury, Iron, DDT, DDE, PCB, Arsenic, Aldrin, Dieldrin, PAHs, Manganese, Pentachlorophenol, Hexavalent Chromium, Lead, Copper, Nickel, Zinc, Parathion, Malathion, Fluoranthene, Chrysene, DDD, Benzo(A)pyrene, and Benzo(A)anthracene.

Further, legacy toxic contamination is widespread in the lower Willamette River as indicated by the designation as the Portland Harbor Superfund Site.

Results of the Sediment Evaluation Framework process indicate the presence of several toxic substances in some of the samples of sediment proposed to be dredged, in exceedance of screening levels, at the following concentrations: PCBs at 56 ppb, 79 ppb and 154 ppb; DDT increasing with depth from 9.4 ppb to 14.5 ppb and 8.4 ppb to 11.9 ppb; Cadmium at 1.49 ppm (or 1490 ppb); and Zinc at 156 ppm and 226 ppm (or 156,000 ppb and 226,000 ppb).

7.11.3 Applicant's Position on Toxic Substances

The applicant provided data on sediment evaluation, but no data or evaluation specific to potential impacts to the water column from Toxic Substances in the Willamette River as a result of the proposed project. Discussions in the draft Environmental Assessment and Biological Assessment indicate expected increases in toxics in the water column, but conclude that effects will be of short duration and localized, and will occur during a time when endangered fish are least likely to be present, such that impacts are negligible.

7.11.5 DEQ Evaluation on Toxic Substances

Disturbance of in-stream sediments can cause short lived, highly localized increases in Toxic Substances as they are released into or suspended in the water column. The history and location of the site indicate the presence of toxics that could become mobilized as a result of disturbance. Additional potential distribution of toxics

may occur through uncontrolled discharges of dredged material or decant water during dredging, placement onto barges, transfer to the disposal site, and offloading at the disposal site, as well as operation of mechanized equipment in or near water with the potential for incidental spills of Toxic Substances.

Sediment sampling in accord with the protocols of the multi-agency Sediment Evaluation Framework (USACE et al, 2009) found elevated levels of DDT, PCBs, Cadmium and Zinc, as described above. Further, levels of DDT and PCBs will be higher in the newly exposed surfaces than in the existing river bed surface.

Elutriate testing was not performed to determine potential concentrations of these chemicals likely to become suspended or dissolved in the water column. Additionally, EPA has not yet determined acceptable levels of these chemicals of concern to be targeted by the overall remedy to the Portland Harbor Superfund site. However, based on levels found in sediments to be dredged and surfaces to be left newly exposed, EPA and DEQ Cleanup have determined that the risk of mobilization at levels and durations harmful to aquatic life is low. This assessment is based on: 1) the fact that existing levels of PCBs and DDT in adjacent areas are higher and, 2) though bioaccumulation screening levels have been exceeded, the potential duration of exposure is not anticipated to have adverse effects, provided that adequate, cleaner material is deposited as anticipated within a reasonable time frame (Humphrey & Freedman (email), 2010).

7.11.6 DEQ Finding on Toxic Substances

Based on the available information, the levels of existing contamination do pose risks for exposed aquatic life. However, given the relative levels of contamination, low potential for dissolved partitioning and nature of the area as depositional, limited magnitude and duration of exposure is anticipated. In order to confirm this, baseline contaminant levels and periodic monitoring of sediment quantity and quality accumulated over the newly exposed surfaces must be undertaken. Further, contingency measures must be developed and implemented in the event that monitoring demonstrates that actual exposure levels and durations are having an unacceptable risk to aquatic life.

While disposal of dredged sediment and all decant water is proposed at a contained upland disposal facility, care must be taken in transferring dredged material and water during all aspects of the dredging and disposal operation. Spills prevention, control, equipment inspection and maintenance, and cleanup measures must be incorporated into conditions in the certification and implemented by the applicant.

If you agree with these statements, I will use them in my Findings on Biocriteria and Antidegradation.

Here are some conditions from the draft 401 cert (similar to the T-5 cert):

Sediment Characterization has been conducted in accordance with the *Sediment Evaluation Framework for the Pacific Northwest, May 2009* [USACE, NMFS, US Fish and Wildlife Service (USFWS), US Environmental Protection Agency (EPA), DEQ, Washington Department of Natural Resources (WDNR), Washington Department of Ecology (Ecology), and Idaho Department of Environmental Quality (IDEQ)].

(a) Sediments were determined by the Project Review Group (PRG) to

be unsuitable for unconfined, in-water placement, due to exceedance of screening

levels and bioaccumulative risk for PCBs, DDT, Zinc and Cadmium.

(b) The PRG determined that newly exposed surface material is likely to contain higher levels of PCBs and DDT than the current levels and therefore, will pose bioaccumulative risk. As such, leave surface management options are required.

5) **Dredged Material and Leave Surface Management:** Due to the contaminants present and the potential for their mobilization into other areas prior to completion of the decision on remedies for remediation of the Portland Harbor superfund site, USACE must implement the following limitations and requirements:

(a) Dredging of holes or sumps below maximum depth and subsequent redistribution of sediment by dredging, dragging, or other means is prohibited.

(b) Within three days of dredging completion, grab samples must be collected from the newly exposed surface and analyzed for PCBs and DDT to establish a baseline for comparison in determining success of the monitored natural recovery option of leave surface management. Density of samples should be repetitive of that done for the SEF process. Results must be submitted to DEQ and EPA.

(c) Relatively uncontaminated sediment is anticipated to be deposited at rates of approximately 4 inches per year. Therefore, following a full spring runoff cycle (or sooner), grab sample collection and analysis must be repeated for the newly deposited surface of the dredged area and compared against the baseline established above. Results must be submitted to DEQ and EPA as soon as they are available.

(d) In the event DEQ and EPA determine from analysis of the sampling results that surface levels of PCBs and DDT pose unacceptable risk, USACE must place clean sand to a depth of at least six inches over the areas of concern, in order to prevent exposure and potential mobilization.

I think perhaps sampling "after the first Spring freshet" or a specific date would avoid USACE asking for clarification.

Do you think there is a better contingency than a cap? Maybe dredging? Other thoughts? (Recall the NMFS BO says cap in 6 months, so it probably doesn't matter, but I don't think capping in the nav channel is a worthwhile practice.)

Are there other conditions that should be added regarding Toxics containment? Any water column sampling during dredging? I don't feel containment measures like a turbidity curtain or floating booms are workable in the nav channel (and probably not necessary if you buy

my rationale of dilution as in the Findings above)... Any other ideas or thoughts?

There are still some LUCS and payment issues and such to work out with USACE, but it would be good to try to get this out on notice by early Aug so they can have most of Sept and Oct to work. Thanks for your input.

--Alex

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Got questions about the 401 WQC process? Check out DEQ's new 401 Certification website at: <http://www.deq.state.or.us/wq/sec401cert/sec401cert.htm>